



AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS

1. (Currently Amended) A method comprising:
providing a wafer comprising a plurality of copper structures partially encased in a hydrophobic interlayer dielectric layer, where top surfaces of the copper structures are exposed and substantially co-planar with a top surface of the hydrophobic interlayer dielectric layer; and
selectively depositing a cobalt capping layer on the top surfaces of the plurality of copper structures with substantially no deposition of the cobalt on the top surface of the interlayer dielectric layer, using an aqueous electro-less bath and applying sonic energy to the aqueous electro-less bath.
2. (Original) The method of claim 1, wherein the applying of sonic energy comprises applying a selected one of mega and ultra sonic energy.
3. (Original) The method of claim 1, wherein the applying of sonic energy comprises applying the sonic energy at a frequency range of 10 to 1200 kilohertz.
4. (Original) The method of claim 1, wherein the applying of sonic energy comprises applying the sonic energy at a power level in a range of 1 to 5 watts/cm².

5. (Original) The method of claim 1, wherein the method further comprises simultaneously rinsing and applying sonic energy to the hydrophobic interlayer dielectric layer after said selective deposition of cobalt.

6. (Currently Amended) A method comprising:

providing a wafer comprising a plurality of copper structures partially encased in a hydrophobic interlayer dielectric layer, where top surfaces of the copper structures are exposed and substantially co-planar with a top surface of the hydrophobic interlayer dielectric layer;

selectively depositing a cobalt capping layer on the top surfaces of the plurality of copper structures; and

simultaneously rinsing and applying sonic energy to the hydrophobic interlayer dielectric layer to decrease the amount of cobalt particles adhered to the hydrophobic interlayer dielectric layer.

7. (Original) The method of claim 6, wherein the applying of sonic energy comprises applying a selected one of mega and ultra sonic energy.

8. (Original) The method of claim 6, wherein the applying of sonic energy comprises applying the sonic energy at a frequency range of 10 to 1200 kilohertz.

9. (Original) The method of claim 6, wherein the applying of sonic energy comprises applying the sonic energy at a power level in a range of 1 to 5 watts/cm².

10 – 23 (Withdrawn).

24. (New) A method comprising:

providing a wafer comprising a plurality of copper structures partially encased in a hydrophobic interlayer dielectric layer, where top surfaces of the copper structures are exposed and substantially co-planar with a top surface of the hydrophobic interlayer dielectric layer;

selectively depositing a cobalt capping layer on the top surfaces of the plurality of copper structures with substantially no deposition of cobalt on the top surface of the hydrophobic interlayer dielectric layer, using an aqueous electro-less bath; and

reducing surface tension of the aqueous electro-less bath during deposition of the cobalt capping layer to increase wettability of the top surfaces of the plurality of the copper structures.

25. (New) The method of claim 24, wherein the reducing of the surface tension of the aqueous electro-less bath comprises applying sonic energy.